

REMARKS

The Office Action mailed April 19, 2005 has been carefully considered. Reconsideration in view of the following remarks is respectfully requested.

Claim 1 has been amended to further particularly point out and distinctly claim subject matter regarded as the invention. Support for these changes may be found in the original claims and in Figs. 1C and 2A. No new matter has been added.

Claim 31 has been canceled, without prejudice or disclaimer of the subject matter contained therein.

The 35 U.S.C. § 112, First Paragraph Rejection

Claims 1, 19-24, 31-34, and 50 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was allegedly not described in the specification in such a way as to enable one of ordinary skill in the art to practice the invention. This objection is respectfully traversed.

Specifically, the office action states that the “original disclosure does not contain support for a compliant substrate ‘having a buried layer of microcavities delimiting a superficial thin layer in the carrier such that stresses brought to said compliant substrate and/or layer of microcavities’.” Claim 1 as previously amended was improper since it was not complete. Thus, Claim 1 has been amended to include “said compliant substrate are absorbed in whole or in part by the thin layer and/or the layer of microcavities”. This

is supported by the original claims and in Figs. 1C and 2A. Thus, it is respectfully requested that this rejection be withdrawn.

Double Patenting

Claim 31 stands rejected to as being a substantial duplicate of Claim 19. Claim 31 has been cancelled without prejudice or disclaimer of the subject matter contained therein. Withdrawal of this rejection is respectfully requested.

Rejection under 35 USC §102(b) – Claim 1 and 35

Claims 1, 13-17, 19-23, 29, 31-33, 35, 50, and 51 stand rejected under 35 USC §102(b) as being allegedly anticipated by Bisaro (USP 5,141,894). Claims 1 and 35 are independent claims. This rejection is respectfully traversed.

According to the M.P.E.P., a claim is anticipated under 35 U.S.C. § 102(a), (b) and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.¹

In the Office Action, the Examiner did not set forth where each and every element of each and every claim rejected under this section is found. Not only must a showing be made for the rejection to be legal, but it must be made in a manner which gives Applicant an opportunity to address it directly. The vague reference to the cited art cannot be meaningfully rebutted by Applicant and Applicant hereby formally requests that the Examiner set forth where each and every element of each and every claim rejected is

¹ Manual of Patent Examining Procedure (MPEP) § 2131. See also *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

found in the prior art reference. In any event, Applicant will attempt to respond to the vague rejection in the Office Action.

Claim 1

With regard to Claim 1, the Office Action states that “the substrate layer is understood to read on the claimed ‘carrier layer;’ The microcrystalline zone is understood to read on the claimed ‘buried layer of microcavities;’ and the epitaxial layer (16) is understood to read on the claimed ‘thin layer.’” The Office Action further states that “the substrate, preliminary layer, and epitaxial growth layer and understood to read on the claimed ‘substrate’. The ion implantation of the epitaxial growth layer (16) is read to read on the claimed micro-cavities, and epitaxial group layer (17) reads on the claimed thin layer.” Applicant respectfully disagrees, for the reasons, among others, described below.

Bisaro discloses a sample being “subjected to an ion implantation of argon ions under 300 K3V of energy with 10^{15} ions per cm^2 ”. (Col. 6, lines 1-8). Attached is a declaration from inventor Hubert Moriceau stating that it is not possible to form microcavities for gaseous species like hydrogen or rare gases under the conditions of the ion implantations as disclosed in Bisaro.

Accordingly, Bisaro does not teach “a carrier having a buried layer of microcavities delimiting a superficial thin layer in the carrier such that stresses brought to said compliant substrate are absorbed in whole or in part by the thin layer and/or the layer of microcavities” as claimed in amended Claim 1. Thus, it is respectfully requested that this rejection be withdrawn.

Claim 35

The Office Action states that “the ion implantation of the substrate reads on the claimed ‘joining means’ of claim 35. The ion implantation of the substrate is taught to create anchoring points that are centered at a depth R_p and having a width of $2.35X_{R0}$ (col. 3 lines 46+).” Applicant disagrees for the reasons, among others, discussed below.

Claim 35 provides for a “carrier and the thin layer being joined one to another by a bonding interface whose bonding energy is controlled to permit absorption, in whole or in part by the thin layer and/or the bonding interface, of stresses brought to said compliant substrate.” Claim 35 does not teach a “joining means” as stated by the Examiner. Rather, Claim 35 provides for a thin layer that is “bonded” to the carrier. This is further supported in the specification which states “Substrates 10 and 14 are made integral by molecular adhesion of their oxide layers 11 and 15.” Additionally, “bonded energy” is defined as “the interaction energy of a bonded pair” and not as a “joining means” as supported by “Semiconductor wafer bonding: Science and Technology” by Tong and Gösele.

Bisaro describes that to obtain a GaAs epitaxial layer 5 of a requested thickness (FIGS. 1a-1c), it is necessary to first form a GaAs epitaxial layer 2 of controlled thickness and implant this epitaxial layer. The epitaxial layer 2 prevents the spread of the dislocations towards the surface (e.g. Col. 2, lines 14-16). It is well known that it is impossible to control the bonding energy at an epitaxy interface when an epitaxy is realized on a substrate. As such, Bisaro does not and could not teach a “carrier and the thin layer being joined one to another by a bonding interface whose bonding energy is

controlled to permit absorption, in whole or in part by the thin layer and/or the bonding interface, of stresses brought to said compliant substrate” as provided for in Claim 35.

Accordingly, since each and every element as set forth in Claims 1 and 35 are not found, either expressly or inherently described, in Bisaro, it can not be said to anticipate the claimed invention. Thus, it is respectfully requested that this rejection be withdrawn.

As to the dependent claims, the argument set forth above is equally applicable here. The base claims being allowable, the dependent claims must also be allowable.

Rejection under 35 USC §103(a) – claims 24, 34, 44, and 49

Claims 24, 34, 44, and 49 stand rejected under 35 USC §103(a) as being allegedly unpatentable over Bisaro in view of Yamashita (USP 3,742,318). This rejection is respectfully traversed.

Claims 44 and 49 were previously cancelled. Claims 24 and 34 depend upon Claim 1. Thus, the argument set forth above is equally applicable here. The base claims being allowable, the dependent claims must also be allowable.

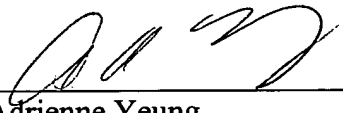
Conclusion

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-1698.

Respectfully submitted,
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